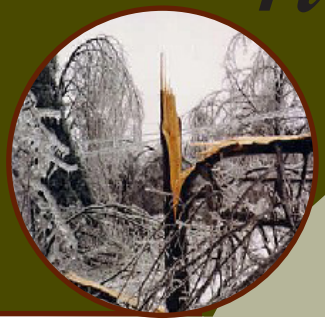
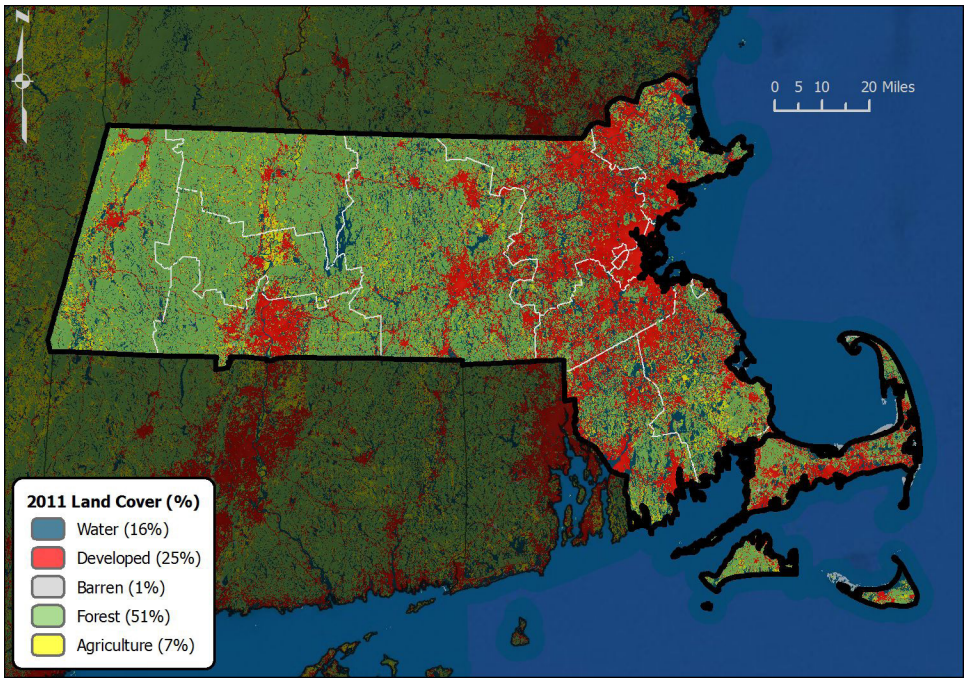
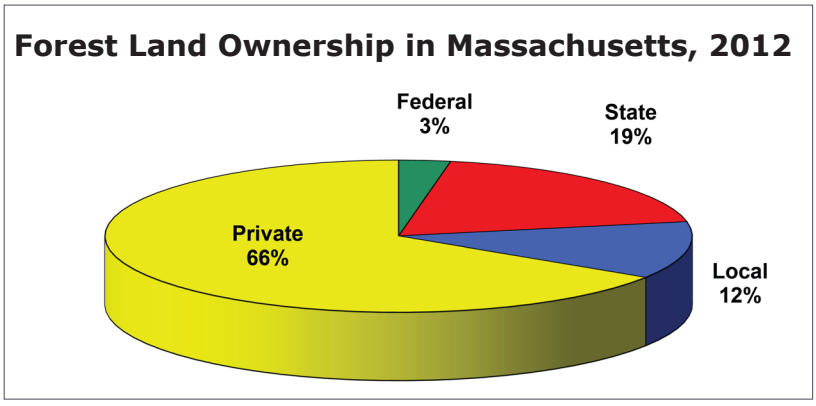
2014 Forest Health MASSACHUSETTS *highlights*



Forest Resource Summary

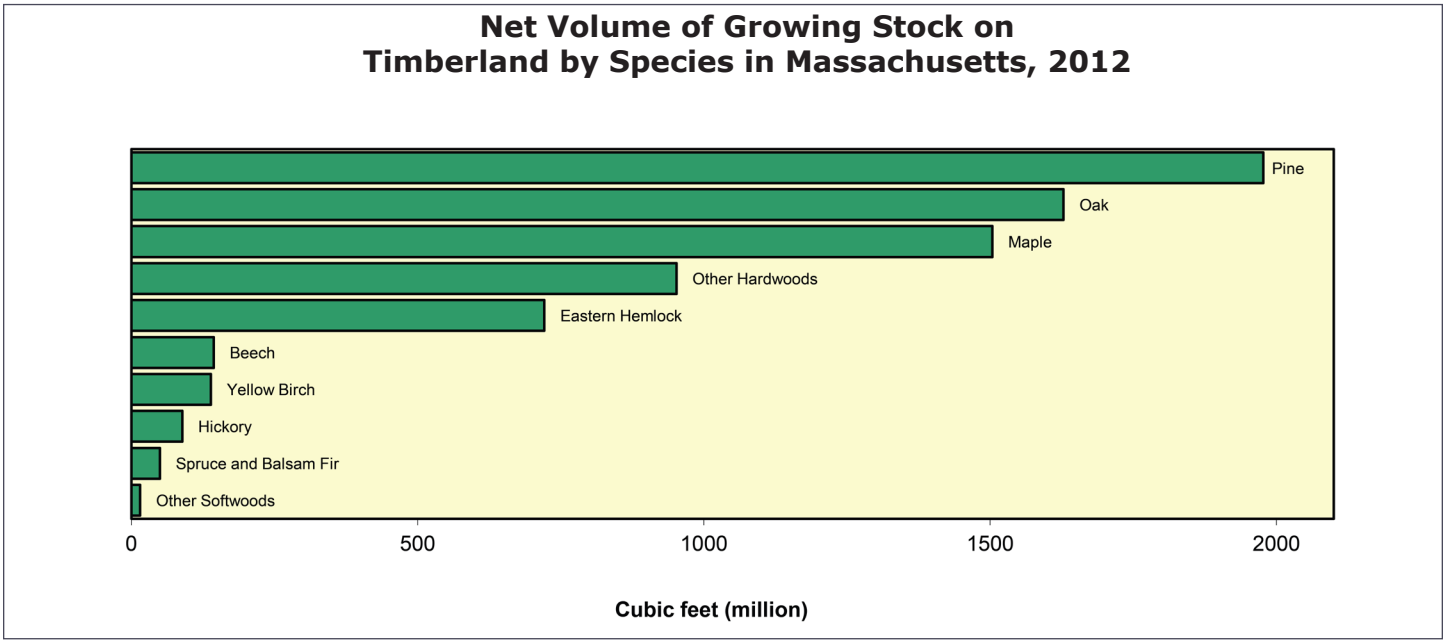
The forest resource of Massachusetts has great demands placed on it. Although Massachusetts is thought of as an urban State, about half of the land area is forested. This forested area is managed for a multitude of purposes, including recreation, water quality, wildlife habitat, and a forest products industry. About two-thirds (66 percent) of the forest land in Massachusetts is privately owned, with only 3 percent in Federal ownership; however, 31 percent is in State and local town ownership, which is unique in the region. The latest Massachusetts forest inventory estimated that there are approximately 3 million forested acres in the State. The forest resource is made up of a variety of forest types—mostly pine, oak, maples, other hardwoods, and eastern hemlock.





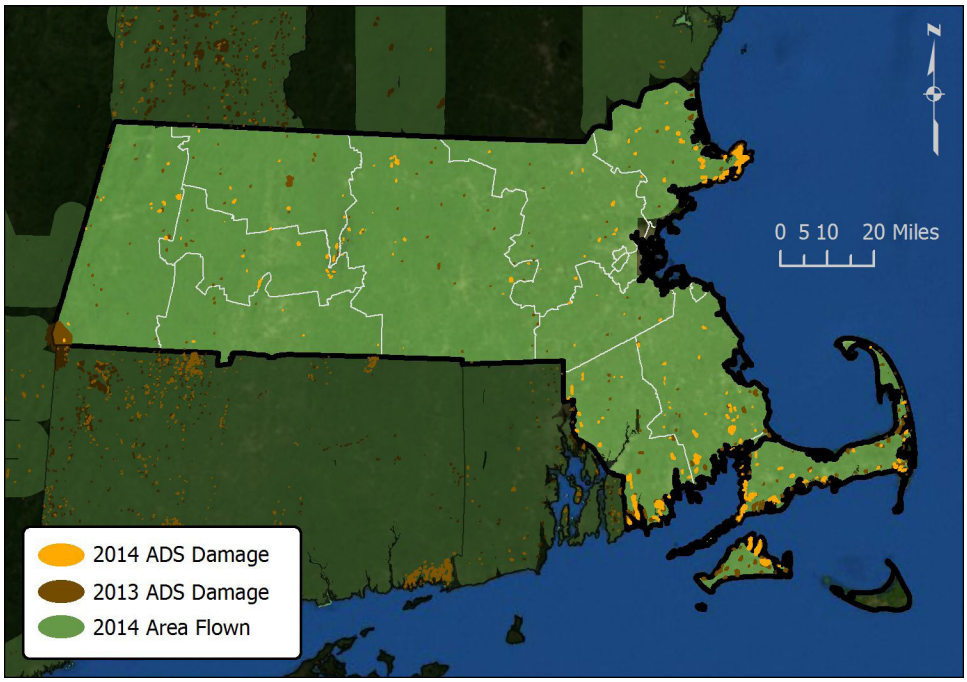
Forest Health Programs in the Northeast

State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.



Aerial Surveys

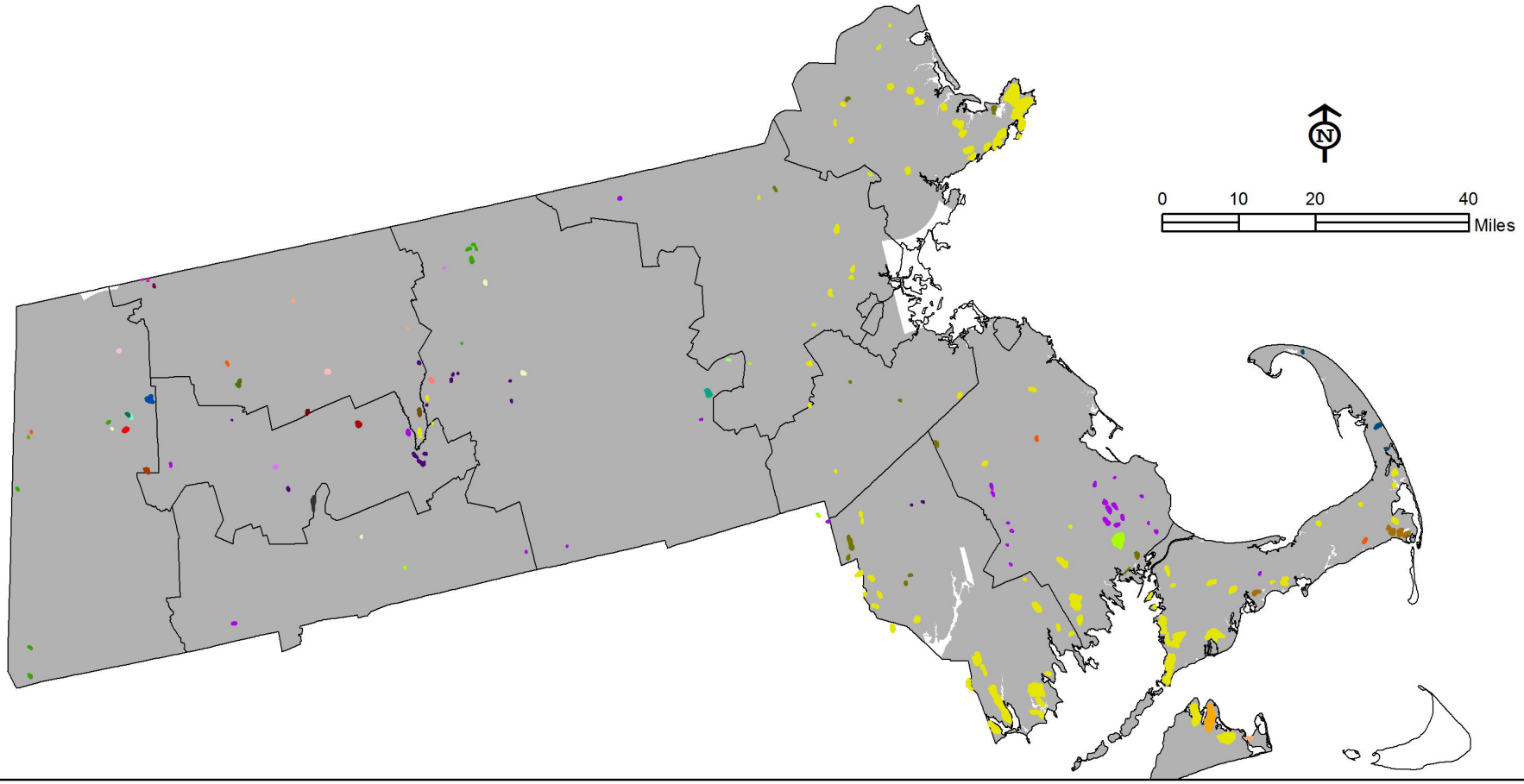
About 45,600 acres of damage were documented statewide from the annual aerial survey in Massachusetts. That was a small percentage of the 5.1 million acres of land flown and about 8,000 acres less than the damage mapped in 2013. The greatest impact by far was defoliation from winter moth (36,468 acres) in the eastern part of the State. The next greatest impact was mortality, defoliation, and discoloration from red pine scale (4,555 acres), which was sometimes accompanied by diplodia canker (1,572 acres). There was defoliation from cynipid gall wasp (2,711 acres) and defoliation, discoloration, and mortality of white pine from needlecast disease (1,360 acres).



Aerial Detection Survey (ADS) observations in Massachusetts in 2013 and 2014.

Less than 1,000 acres of damage were mapped from each of several other causes, including gypsy moth (231 acres), Armillaria root disease (541 acres), a microburst wind storm (381 acres), and pitch pine mortality on Cape Cod due to prescribed burning (297 acres).

2014 Massachusetts ADS Data



Key

Area Flown

Mapped by MA

- Defoliation from Armillaria root disease on Norway spruce
- Defoliation from anthracnose on hardwoods *
- Defoliation from anthracnose on oak(deciduous)
- Defoliation from flooding-high water on red spruce, fir, and red maple
- Defoliation from gypsy moth on northern red oak
- Defoliation from land use conversion on hardwoods *
- Defoliation from red pine scale and Diplodia canker on red pine
- Defoliation from red pine scale on red pine
- Defoliation from unknown on hardwoods *
- Defoliation from needlecast on eastern white pine
- Defoliation from winter moth on oak(deciduous)
- Defoliation from winter moth on oak(deciduous) and Mortality from Crypt gall wasp on black oak
- Defoliation from winter moth on oak(deciduous) and Defoliation from Crypt gall wasp on black oak
- Defoliation from winter moth on red maple
- Discoloration from red pine scale and Diplodia canker on red pine
- Discoloration from red pine scale on red pine
- Discoloration from snow-ice on hardwoods *
- Discoloration from spruce needle cast on Norway spruce
- Discoloration from needlecast on eastern white pine
- Discoloration from white pine needle cast on eastern white pine. Discoloration from red pine scale and Diplodia canker on red pine.
- Discoloration from winter moth on oak(deciduous)
- Main Stem Broken/Uprooted from wind-tornado/hurricane on oak(deciduous)
- Mortality from flooding-high water on red spruce and red maple. Mortality from logging damage on cherry; plum
- Mortality from flooding-high water on northern red oak and red maple
- Mortality from flooding-high water on red spruce
- Mortality from human caused fire on pitch pine
- Mortality from land use conversion and Armillaria root disease on Norway spruce
- Mortality from red pine scale and Diplodia canker on red pine
- Mortality from red pine scale on red pine
- Mortality from needlecast on eastern white pine

Mapped by VT

- Dieback from beech bark disease on American beech
- Mortality from beech bark disease on American beech

USDA Forest Service
Northeastern Area, State and Private Forestry
Forest Health Protection, Durham, NH.
http://www.na.fs.fed.us/fhp/index.shtm

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Special Pest Surveys

Personnel from the Massachusetts Department of Conservation and Recreation (DCR) Forest Health Program deployed 435 purple panel traps throughout Massachusetts to monitor the invasive **emerald ash borer** (*Agrilus planipennis*). Traps were concentrated in areas of high risk, including campgrounds and highway rest areas. In addition, 20 white ash trees at 10 locations in Berkshire County and 18 white ash trees at 9 locations in Essex County were girdled—another method used to monitor emerald ash borer.

The annual **gypsy moth** survey was conducted in pre-established plots statewide to monitor future population trends. Worcester County plots (Quabbin Reservoir area) showed an increase in the number of gypsy moth egg masses.

DCR personnel helped the University of Massachusetts entomology program monitor **winter moth** populations using both aerial and ground surveys. Results of the larval monitoring are used to determine release locations for the predatory fly *Cyzenis albicans*.

Other Forest Health Projects

The DCR Forest Health Program continues to be the lead State agency for Asian longhorned beetle eradication efforts in the Worcester County and Boston infestations. Using funds from a U.S. Forest Service grant, DCR personnel also deployed and monitored 1,000 Asian longhorned beetle pheromone traps in the Worcester County infestation. These traps helped locate two areas of infestation within the quarantine zone.

DCR conducted biosurveillance for emerald ash borer across the State by locating and monitoring areas with the predatory wasp *Cerceris fumipennis*.

DCR also released two biological controls, *Oobius agrili* and *Tetrastichus planipennisi*, for emerald ash borer in both the Berkshire and Essex County infestations.

DCR continued to supply wood to the USDA Animal and Plant Health Inspection Service's Otis Method Lab for rearing of and research on Asian longhorned beetle and emerald ash borer.

Forest Health Highlights

Hardwood Defoliators

In the eastern part of the State on the North and South shores, Cape Cod, and Martha's Vineyard, approximately 36,468 acres of defoliation caused by the **winter moth** were mapped during the annual aerial survey. The U.S. Forest Service and the University of Massachusetts have combined efforts in using the biological control *Cyzenis albicans* for winter moth control. They are making progress with populations of the predatory fly being established in eight locations.

Large populations of **cynipid gall wasp** (*Callerhytis ceropteroides*) were noticed on Cape Cod and Martha's Vineyard. Defoliation and scattered mortality from this insect pest continued. In some areas where high densities of winter moth defoliation combined with cynipid gall wasp injury, there are concerns about further stress and mortality of black oak trees.

Cynipid gall wasp injury on black oak on Cape Cod.
(Photo: Ken Gooch, MA Department of Conservation and Recreation)

There was a small area (231 acres) of **gypsy moth** defoliation mapped near the Quabbin Reservoir. There were signs of *Entomophaga maimaiga* fungus on caterpillars, which may help keep future gypsy moth populations in check.

Conifer Insects

We continue to observe the spread of **red pine scale** statewide. Large areas of mortality and rapid defoliation are now being mapped aerially with 4,555 total acres of red pine damage seen this past growing season.

Red pine mortality from red pine scale in Sandwich, MA.
(Photo: Ken Gooch, MA Department of Conservation and Recreation)

Hemlock woolly adelgid populations decreased considerably this year due to colder than normal temperatures during the 2013/2014 winter season. We continue to monitor the previously released biological control insect *Laricobius nigrinus*.

Elongated hemlock scale has been noticed causing more stress on hemlocks statewide.

Conifer and Hardwood Diseases

Rhizosphaera needlecast disease caused widespread lower canopy defoliation on blue spruce statewide in Massachusetts. This was seen primarily on ornamental blue spruce planted in landscapes.

Anthracnose leaf disease was noticed statewide, primarily on sugar maple and white ash. This leaf disease caused premature leaf drop. In addition, **tar spot leaf disease** was seen statewide on Norway maple with 338 acres of damage mapped.

White pine needlecast caused 1,350 acres of defoliation during the 2014 growing season.

Armillaria root disease caused 541 acres of Norway spruce defoliation and tree mortality. This was seen in Norway spruce plantations in the western part of the State.

Abiotic Concerns

A straight line wind event was responsible for 381 acres of tree mortality in the towns of Easthampton and Holyoke.

References

Land Cover Map:

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Forest Land Area by Ownership:

Oswalt, Sonja N.; Smith, W. Brad; Miles, Patrick D.; Pugh, Scott A. 2014. Forest resources of the United States, 2012: a technical document supporting the Forest Service 2015 update of the RPA Assessment. Gen. Tech. Rep. WO–91. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. Table 2.

Net Volume of Growing Stock on Timberland by Species:

Oswalt, Sonja N.; Smith, W. Brad; Miles, Patrick D.; Pugh, Scott A. 2014. Forest resources of the United States, 2012: a technical document supporting the Forest Service 2015 update of the RPA Assessment. Gen. Tech. Rep. WO–91. Washington, DC: U.S. Department of Agriculture, Forest Service, Washington Office. Table 23 & 24.

Massachusetts Forest Inventory:

Butler, Brett J. 2014. Forests of Massachusetts, 2013. Resource Update FS–20. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station. 4 p.

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